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CLAIMS:

The Claims Defining The Invention Are As Follows:

- 5 1. A fluid cooled wet brake system comprising:
a sealed housing containing a lubricating liquid;
a disc disposed in the housing and adapted for fixing
to a rotating body projecting into the housing, the
disc having first and second opposite planar surfaces;
10 friction material attached to the first planar
surface;
a first stator slidably mounted and rotationally fixed
within the housing and having a first braking surface
facing the first planar surface, the first stator
15 provided with a fluid inlet, a fluid outlet, and one
or more internal fluid flow paths extending between
the fluid inlet and the fluid outlet through which a
cooling fluid flows; and,
an actuator for selectively applying a force on the
20 first stator to slide the first stator towards the
disc and hold the braking surface against the friction
material.
2. The wet brake system according to Claim 1 further
25 comprising a second stator having a second braking
surface facing the second planar surface and wherein
the friction material is attached to the second planar
surface, with the second braking surface facing the
friction material on the second planar surface, and
30 wherein the actuator selectively applies force on the
second stator to slide the second stator toward the
disc and hold the second braking surface against the
friction material on the second planar surface.

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3. The wet brake system according to Claim 1 or 2 wherein each stator is provided with a plurality of parallel fluid flow paths that extend between the fluid inlet and the fluid outlet.
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4. The wet brake system according to Claim 3 wherein each stator comprises a first annular plate provided with a plurality of channels on one side, and a second annular plate attached to the one side for covering the channels wherein the covered channels form the internal fluid flow paths.
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5. The wet brake system according to anyone of Claims 1 to 4 further comprising a mechanism that slidably couples each stator to said housing.
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6. The wet brake system according to anyone of Claims 1 to 5 wherein the friction material is in the form of one or more pads of friction material detachably coupled to the disc.
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7. The wet brake system according to Claim 6 wherein the pads are circumferentially spaced apart about the disc.
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8. The wet brake system according to Claim 6 or 7 wherein each pad is provided with grooves on its surface, where each groove opens at its opposite ends onto an edge of the pad.
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9. The wet brake system according to anyone of Claims 1 to 8 wherein the braking surfaces are provided with grooves which extend between, and open at their

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opposite ends, onto respective inner and outer edges of the braking surface.

10. The wet brake system according to Claim 8 or 9 wherein
5 the grooves follow a spiroidal curve.